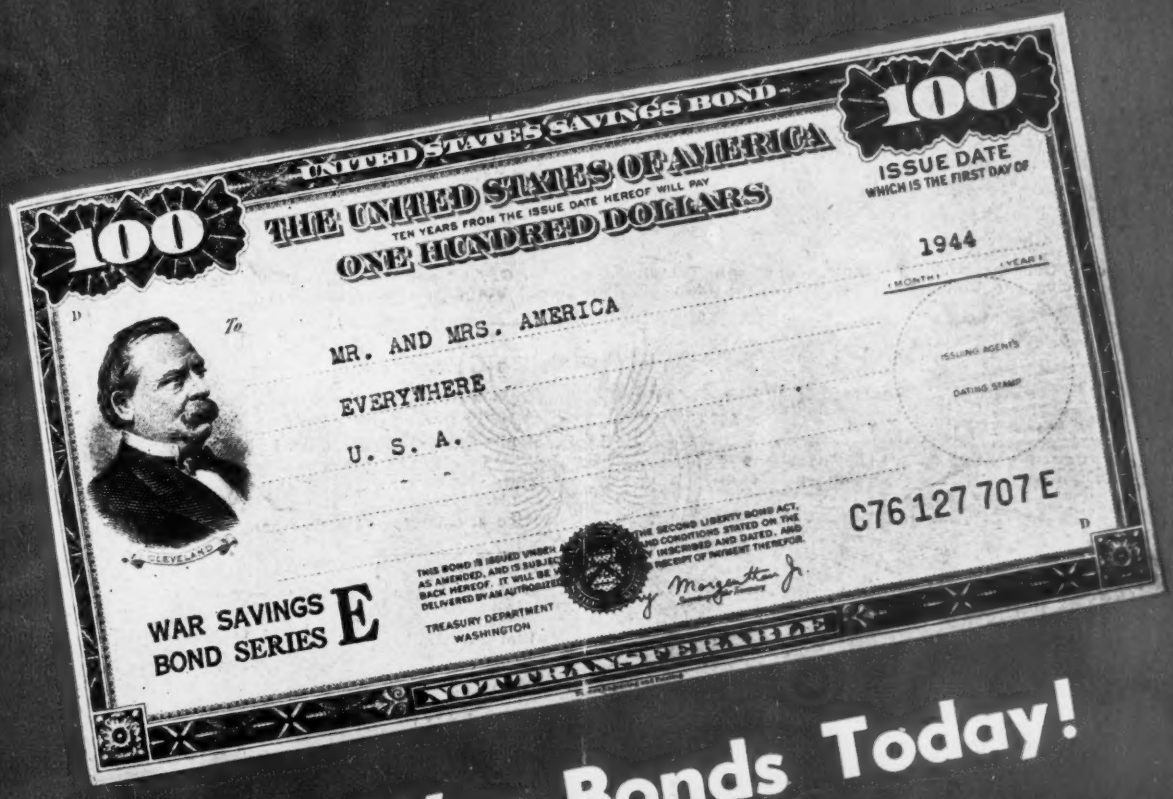
JUL 15 1944

Industrial Standardization



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Motion pictures are playing an important role in modern war—in building morale, and in quick, efficient instruction of Army and Navy personnel.

War Standards for Photographic Equipment Speed Military Instruction

by A. G. Zimmerman

RCA Victor Division, Radio Corporation of America
Chairman, Subcommittee D, ASA War
Committee on Photography and Cinematography, Z52

Quicker replacement of parts as well as efficient performance, despite the shock and wear of service conditions, are the result of the ASA War Committee's work on 16-mm photographic equipment.

Specifications for a service model 16-mm motion picture projector are first in the series to be completed.

A SCHOOLBOY from the University of Minnesota, transplanted to a fox hole in the south Pacific, experiences a dislocation far beyond the imagination of most of us. That same boy must, further, be trained in the art of self-preservation against enemies, both natural and unnatural, and this training must be accomplished in an incredibly short period of time. Under ordinary circumstances an individual's knowledge of the customs, living conditions, and general nature of the people with whom he comes in contact is the result of years of association with his surroundings. War, however, gives no time for such experiences, for individual instruction, or even for ordinary methods of training to develop personal knowledge of the terrain, of enemy customs, customs of friendly natives, or an understanding of new and unfamiliar equipment. The neophyte warrior must be educated in a matter of days, or even of hours, to kill, if he is not to be killed.

The Chinese have a proverb to the effect that one picture is worth a thousand words. Faced with the problem of educating an Army and Navy in the least possible time, those responsible for military training have not ignored this ancient knowledge. As a result, the use of military arms, prevention of disease, and methods of assuring their general welfare under varying geographical conditions, have been taught to our fighting men in a remarkably short period of time.

How has this been done? It has been accomplished largely through the use of the motion picture.

The Armed Forces believe that the motion picture, preceded or followed by printed commentary, is an able substitute for years of experience. Actual scenes, re-enacted by professional or amateur personnel, with an audible description of the action as it occurs, is an improvement of the Seven League Boot variety over the silent "movies".

The fact that motion picture equipment was available immediately for the use of the Armed Forces can some day be written into the annals as a major contribution to the success of our campaigns.

The contribution of the motion picture to the war effort does not stop with its service to the Army and Navy, however. Military success, as everyone knows, is dependent upon preparation, the amount and quality of equipment available, and the speed at which it is provided. When the war first started, the country as a whole was in need of schooled artisans to perform certain functions necessary for the design and manufacture of war materiel. In many cases the operators of machines had never heard of the product that they were to make, much less the machine they were to operate to make that product. Processes and machine tool operations were as foreign to them as though they had been created in a different world.

Those in command of industrial organizations, therefore, as well as those in command of military organizations, were faced with the necessity of preparing, and releasing to the country in general, educational material which would make it possible for them to turn out production, to reduce scrap, and also to protect the health of workers so that schedules could be met. For this, too, motion pictures furnished the means of education.

We can be truly thankful that the equipment for carrying on such a program was available, and that the country was able to fall in line quickly on the preparation of training films.

Fortunately, too, for our men who were called to the colors, the United States had been progressive in the development and partial standardization of the motion picture industry—particularly in the 35-mm or theatrical type of equipment. The non-theatrical or 16-mm type of equipment, however, utilized standard film but practically stopped there, in so far as standardization was concerned. It was unfortunate that the 16-mm equipment which was available at the time hostilities started was of such nature that no two projector mechanisms resembled each other. Each type of projector was manufactured from the designs of engineers varying in their opinions. Each was manufactured in an independent organization catering to a certain clientele.

In peacetime, these manufacturers and consumers were satisfied (or at least partially so) by the performance of the equipment which they had produced or procured. Commercial 16-mm equipment had been designed for what had been considered at that time the most stringent application—that of the classroom, or

The weather does not stop a movie show when Navy men are the audience. Equipment made to new standards is designed for long life and dependability under severest service conditions.

possibly the sales organization, which required the exhibition of not more than two or three reels of film per day. The new or military requirement, on the other hand, was such that the machine had to be available for operation any hour of the day without failure. In addition, it had to be used under the most extreme conditions of vibration, shock, high humidity, extreme low- and high-ambient storage and operating temperatures, and salt-and-dust-laden atmospheres. Further, the using personnel could not always be carefully trained motion picture men—any untrained G.I. might have to operate it under service conditions. And eventually the equipment would have to be repaired. Quick and easy replacement of parts would be necessary, and for example, in the South Pacific jungles, a service man could not be found around the corner and a source of spare parts found two miles down the street.

Imagine, then, the dilemma of the Armed Services in attempting to obtain projection equipment which would be satisfactory for continuous use in any climate, and under any conditions.

Here is an example of conditions as they actually exist. Let us imagine that a convoy has left from a port of embarkation under sealed orders. During the interval of time between the embarkation and the arrival at the destination, the enemy has perfected a new device with which the fighting personnel of the convoy have not been able to familiarize themselves. This information in the meantime has been transmitted to Facilities Branches in the States which have been able to prepare illustrative films, pointing out the advantages and weaknesses of the enemy's new technique. These films are flown to the convoy destination.

Instructions are issued to brief the troops in as short a space of time as possible on the new technique to be used. The motion picture equipment is set up and operates almost continuously, with companies or even regiments in attendance, in order that the greatest number of men can be trained in the shortest space of time.

Let us imagine that there are two machines available at this particular point, each of different manufacture. Let us carry our picture still further and imagine that a particular part of the machine wears out or proves defective under the constant "grind". Immediately the instruction efficiency is cut in half, since only half the personnel can be handled at a time. To carry our point still further, let us suppose that the Procurement Officers have done a perfect job in making spare parts available with the original equipment, but in this particular instance the spare parts that have arrived at the destination are for only *one* of the many types of equipment they are using. As a matter of fact, situations have occurred, and unfortunately still do occur, where the spare parts available are not applicable to either type of equipment in use.

Literally millions of lives depend upon the portrayal of this information in the shortest possible time, and now, through no fault of the expeditionary forces, this information must be passed on either verbally or through a slow and tedious classroom operation.

Conditions such as this became apparent immediately upon our advent into the war, yet the pressure was so great to get material, planes, rifles, ammunition, fuel, etc., that the training media—motion picture equipment and films—although considered highly important by the Armed Forces, was not considered sufficiently important to create any form of standardization. The procurement offices obtained equipment from any source, going on the assumption that war is a wasteful procedure at best. This "civilian" equipment served as a "stop-gap" and despite its shortcomings has played a large part in our successes to date.

May Be Used in Occupied Countries

As the war has progressed, however, the importance of improving the facilities for instruction work, as well as for field entertainment, has become more widely recognized. Far-sighted individuals connected with training, engineering, and procurement in the Armed Forces have realized that the preliminary training given the troops is only one function which this equipment will be called upon to perform. Our ultimate successes in the field must be followed by additional training, since the occupied countries, as they become such, must be educated to cooperate with the forces of democracy. This can best be accomplished through the medium of picture and sound.

For our immediate purposes, however, the Armed Forces are particularly interested in the development and design of equipment which will ask no quarter under any field service conditions. Such equipment, in other words, would be able to take its place alongside ordnance equipment in ruggedness and performance efficiencies.

Standardization Lessens Field Failures

In addition, the Armed Forces are concerned with the solution of service problems, so that field failures, with their disappointments, can be reduced to a minimum, if not eliminated. In the short space of a few months these problems had become only too evident, and the Armed Forces had become only too conscious of the shortcomings of the commercial equipment available, to a great extent due to complete lack of standardization of the 16-mm equipment. Lens barrels, for example, were of different diameters, different tube complements were used (in some instances none of which were interchangeable between equipments), different projection lamps, different motors, etc., necessitated the stocking of literally thousands of parts. In some instances these parts will never be used because they may not be available for the equipment they fit at the time and place they are needed.

With all this in mind, the Army Pictorial Service late in 1943 asked the War Production Board to arrange for standardization of 16-mm photographic equipment for use by the Armed Forces.[1]

First of the important standards completed by this War Committee and approved by the American Standards Association as an American War Standard is the American War Standard Specification for a Service Model 16-mm Sound Projector, Z52.1-1944. The standard was prepared by Subcommittee D of ASA War Committee Z52, under the chairmanship of the writer and the vice-chairmanship of J. A. Maurer.

This specification, for portable 16-mm sound motion picture projection equipment suitable for use under severe service conditions, has been prepared through the coordinated effort of representatives of industry, the Armed Forces, and the War Production Board. Projectors built to these requirements will give a performance that compares favorably in the quality of the image and sound with the 35-mm projectors used in movie houses all over the country. Packed in three 56-lb cases it will be able to go anywhere that a soldier can go. It is designed to withstand life in the rear end of a jeep; and to give long service in the moisture-laden atmosphere of the South Pacific. For ruggedness and dependability of performance, these specifications call for an operating performance which surpasses any 16-mm projector at present on the market.

One of the most important features of this proposed motion picture projector will be the ease with which it can be serviced. The development specifications call for easily interchangeable lenses, tubes, and other parts that will make these projectors easy to repair at isolated bases.

The sound amplifiers, too, will have to be a lot sturdier than their commercial equivalents. The equipment throughout is designed to be as simple and as foolproof to operate as possible. Attention has also been given to its ability to withstand high temperatures, because it may be stored in shacks on deserts or transported in ships' holds stacked next to steam pipes.

In order to insure a reasonably long life, one section of the new standard provides that the projector shall be operated continuously, except for time consumed in film replacement, for a period of 500 hours with the projection lamp turned on. At the conclusion of the 500-hour run, the projector is to be subjected to all other nondestructive tests and inspections called for in the specification. Other tests include a severe vibration test, tests for resistance to heat and humidity, and a concussion test that corresponds to the firing of a broadside on a cruiser, in order to be sure that the projectors will stand up under military transport and use.

Revised Standard to Be Used for Procurement

In its present stage, the new War Standard is intended as a development specification for use by the Armed Forces in procuring pilot models of projection equipment which will meet the basic requirements for use by the Armed Forces. Many of the test values in this standard are somewhat higher than those which have customarily been met in the past by projection equipment, which was designed originally for home or light industrial use. After pilot models of projectors meeting the requirements in this specification have been procured, certain of the requirements will be modified in order to obtain the best all-around compromise of performance with production. The revised

[1] For a description of the organization of ASA War Committee Z52, see INDUSTRIAL STANDARDIZATION, January, 1944, page 8.

specification, it is expected, will then he used by the Armed Forces for quantity procurement of 16-mm portable sound motion picture projection equipment.

In preparing the standard, Subcommittee D carried out the following:

1. Correlated existing military specifications for materials, processes, and tests.
2. Approved or specified types of aceptable construction.
3. Stressed coordination of safety and facility of operation.
4. Established design and performance principles, limitations, requirements and tests:—mechanical, optical, and electrical.
5. Established maintenance requirement limits, particularly as regards field service problems.
6. Set up standard "tools" in the form of visual test films and equipment which could be used universally for design or acceptance testing. These include the following three American War Standards: Method of Determining Freedom from Travel Ghost in 16-mm Sound Motion Picture Projectors, Z52.4-1944; Method of Determining Resolving Power of 16-mm Motion Picture Projector Lenses, Z52.5-1944; and Method of Determining Picture Unsteadiness of 16-mm Sound Motion Picture Projectors, Z52.6-1944.

Perhaps we have undertaken the first step in a Herculean task. The completion of this task may not be "just around the corner," but certainly we have hopes that this work will be a great advantage to the Armed Forces (in accord with their requirements) and in peace-time will be a yardstick by which the consumer and the manufacturer are able to obtain a mutually satisfactory product.

Following the approval of this standard as an American War Standard on April 28, the standard was submitted to the Armed Forces Committee on Photography and Cinematography. The committee presented this American War Standard to the Joint Army-Navy Committee on Specifications and with minor editorial revisions, the specification was approved as Army-Navy Specification, JAN P-49, on May 31, 1944.

Speed of Work Astounding

The chairman of Subcommittee D wishes to express and extend personal gratitude to those members of Subcommittee D, as well as the parent committee Z52 of the American Standards Association, who have contributed to the factual portions of the specification. Considering the problems, the speed with which the specification was completed was astounding. Particular credit should be given to the personnel of the American Standards Association for their ability to have at their finger-tips information regarding previous standards and standards' activities which, in a large measure, assisted Subcommittee D in moving along rapidly with the preparation of the specification.

It has been said, "It is an ill wind that blows nobody good." In this case it took a war and our common defense to bring together the manufacturers of 16-mm motion picture equipment, in order that a satisfactory specification for military equipment could be prepared. It is expected that this will be merely a beginning in the program of standardization.

New Foreign Standards Now in ASA Library

THE following new and revised standards, just received by the American Standards Association, may be borrowed by ASA Members, or ordered through the ASA Library.

Australia

Draft Standards

Porcelain Insulators for Overhead Power Lines and Outdoor Switching Structures C67

Great Britain

Draft Standards

Clay Flue Linings & Chimney Pots Suitable for Open Fires CG(CLB)5912

Non-ferrous (excluding Lead) Thimbles and Ferrules CG(HIB) 6152

Non-ferrous (excluding Lead) Traps and Wastes CG(HIB)6153

Amendments

"Gilding Metal" Strip for Bullet Envelopes Amendment 1: February, 1944 BS/STA. 19

Miners' Lamp Bulbs Amendment 4: September, 1943 B.S. 535: 1938

High Quality Hard Drawn Spring Wire Amendment 1: February, 1944 BS/STA 3

Rules for Measurements of Voltage with Sphere-gaps Amendment 1: March 1, 1944 BS 358:1939

Special First Quality Hard Drawn Spring Wire Amendment 1: February, 1944 BS/STA 1

Standard Quality Hard Drawn Spring Wire Amendment 1: February, 1944 BS/STA 4

War Emergency Revisions

Manila Ropes for General Purposes Amendment 6: March, 1944 BS 431:1940

Turbine Oils Amendment 1: February, 1944 BS 489:1933

Library Association Standardizes Definitions of Library Terms

A standard terminology for library usage is provided by a new *ALA Glossary of Library Terms*, published recently by the American Library Association. The publication is a more comprehensive dictionary of library terms than any yet available, the Association announces.

The definitions were formulated by the Association's Committee on Library Terminology, now a subcommittee of the ALA Editorial Committee. They include catalog and bibliographical terms, and selected terms in several fields related to library work, such as archives, printing and publishing, paper, binding, illustration and prints.

Copies of the Glossary are available from the American Library Association, 520 North Michigan Avenue, Chicago, Illinois, price $3.50.

British Standards Institution Reports 1500 Completed Standards

The work of the British Standards Institution has been more than doubled since the beginning of the war as the result of requests from the government for standards for all kinds of war commodities, the BSI announces. The Institution is run by industry but has a financial grant from the government. About 1,500 standards have been issued to date, and an active post-war program, particularly in the field of building materials, is being planned.

New Standards for Better Gas Water Heaters

by Elizabeth McNutt

American Gas Association Testing Laboratories[1]

IN line with the policy for constant strengthening of standards covering gas-burning equipment on behalf of gas users, approval requirements for gas water heaters have recently been extensively revised, approved as American Standard by the American Standards Association, and published by the American Gas Association. Since these requirements enjoy the full support of the gas industry and at the same time serve as guides to manufacturers, their application will still further raise the high standard embodied in contemporary water heaters and render them capable of even better service to American consumers.

One of the major revisions in the new edition consists of appropriate modification in the gas and pressure test provisions so as to duplicate the most extreme operating conditions likely to be encountered by a heater when in actual use. By application of these provisions at the time of testing, assurance is obtained that approved equipment will operate satisfactorily on all city gases distributed throughout the country. Similar provisions are now contained in standards covering all commonly used types of gas appliances. From the consumer's point of view, approved appliances possess such a wide degree of flexibility in operation as to be entirely independent of fluctuations in gas supply which may normally take place. Furthermore, should the consumer move to another location where a different gas is distributed, minor adjustments only are necessary.

Another important change in performance tests added to the current requirements is also of consumer interest. With the advent of modern utility rooms, streamlined and "dressed up" so that they may also serve for recreational purposes, there has been a growing tendency to install gas appliances closer to the walls. By requiring that all heaters designed for flush-to-wall installation must be tested that way, low wall and floor temperatures within the allowable limits are assured under the severest operating conditions.

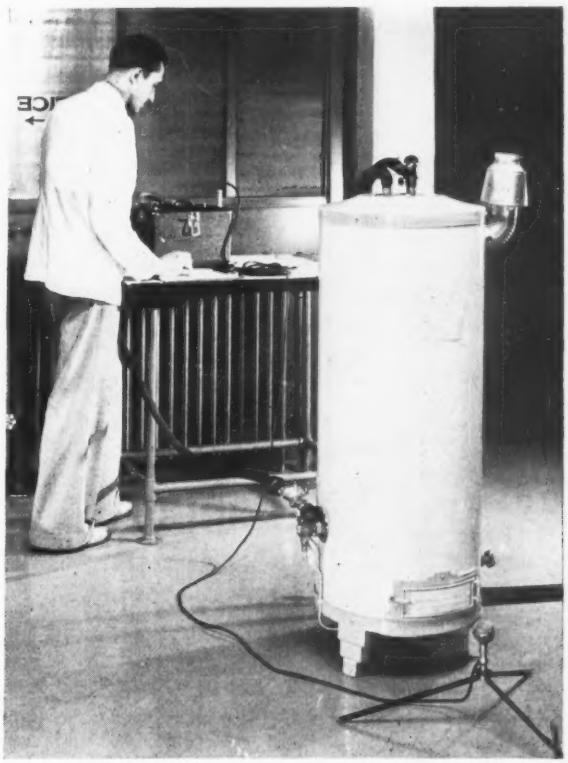
The photograph on page 114 serves to illustrate a research investigation by a requirements committee on the effect the distance of a water heater from the side walls has on the resulting temperature of the walls, and the effect of temperature on various commercial grades of linoleum floor coverings. From this study, the test procedure adopted assures freedom from scorching of floor coverings as well as low wall surface temperatures.

How requirements are strengthened by new test procedures is illustrated by a new test covering noise of operation. In this instance, use of a sound level meter completely eliminates the human equation in conducting this examination. The equipment and arrangement employed is shown in the photograph on this page.

Other changes of importance relate to accessories normally used on gas water heaters, including thermostats, automatic pilots, temperature and pressure relief devices, and gas valves, to mention a few.

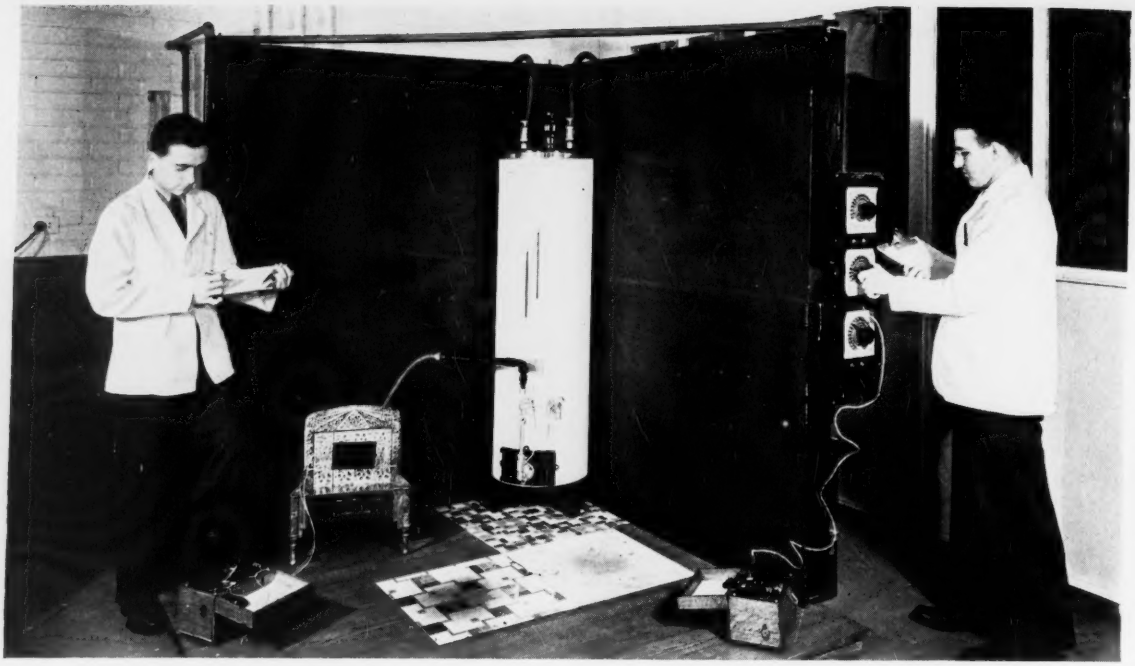
Along with the gas water heater standards, revisions to the second edition of American Standard Listing Requirements for Gas Valves (former gas-burner valves) were adopted by the American Standards Association. Essentially these revisions increase the scope of these standards to provide appropriate construction and performance tests for hose-end valves. These were found necessary as a result of a wide-spread demand, particularly in Southwest territories where they are so widely used. Inasmuch as relatively few changes were made at this time, these revisions have been printed as an addenda to the current American Standard, Z21.15-1942.

Following the accepted procedure of the American



A sound level meter is used in this standard test, to determine how much noise the water heater makes when it is in operation.

[1] The American Gas Association is sponsor for the ASA project Approval and Installation Requirements for Gas Burning Appliances (Z21).



This is how floor and wall temperatures are measured when the water heater is installed flush to the wall. The test also determines the effect of the temperature on linoleum.

Standards Association, these revised sets of requirements were distributed to the industry and to interested consumer agencies for their comments and criticism prior to their endorsement in final form by Sectional Committee Z21, the Approval Requirements Committee of the American Gas Association. Consumers are directly represented in this group. Agencies representing general and consumer interests are the National Bureau of Standards, U. S. Bureau of Human Nutrition and Home Economics, U.S. Bureau of Mines, U.S. Public Health Service, Federal Housing Administration, and the American Home Economics Association, to mention a few, all of whom cooperate with gas utility and gas equipment manufacturers to insure consumer satisfaction.

The AGA Approval Requirements Committee supervises the standardization activities of some 40 subcommittees, each concerned with a specific type of gas appliance or accessory. At the present time more than 300 national authorities on gas and gas appliance problems compose the membership of these subcommittees. The members of these committees initiate the standards which appliances must meet and by which they are tested. As in the case of the gas water-heater standards, after they have been submitted to the industry for criticism, they are again reviewed by the subcommittee and endorsed by the sectional committee before they are in turn submitted to the American Standards Association. The latest gas water-heater standards were ratified and adopted as American Standard on February 23, 1944.

Consumer acceptance of the tested and approved appliances complying with applicable American Standards is clearly demonstrated by the fact that more than 95 percent of all gas-burning equipment offered for sale displays the Laboratories' Approval Seal of the American Gas Association. As a matter of fact, at the onset of the war, as a result of the availability of American Standards for gas-burning appliances, it was not necessary for federal procurement agencies to set up new specifications for such equipment for war or defense housing, or similar needs. Immediate demands could be rapidly filled with tested and approved models already available. This is indeed a creditable commendation on the significance and importance of American Standards for gas equipment.

Ninth Edition of Standard

The new gas water-heater standards constitute the ninth edition of these requirements since 1927. A new and strengthened edition has been issued approximately every two years. Whereas a water heater was required to meet a total of 114 specific conditions in the first edition, it now must comply with nearly 250 performance and construction features, an increase of over 125 percent. The extent to which additional features have been included can thus readily be seen.

Despite the fact that production of gas appliances has been curtailed to meet only the barest needs under war conditions, it was the unanimous feeling of all interested and cooperating agencies that the benefits attained since inauguration of the standardization and testing program in 1925 should be retained in their entirety. When the extent of anticipated post-war buying is taken into consideration, it becomes all the more important that gas appliances should comply with up-to-date standards in order to afford true consumer protection. Considering water heaters as an example, it was found on the basis of the survey conducted in 1942 by the Census Bureau that more than 80 percent of all heaters in use were gas operated. Many of these units will need replacement by the end of the war. It is thus evident that any appliance affecting more than four-fifths of those homes having hot water service should afford the maximum in safety and serviceability.

American War Standard Defines Safe Concentration of Styrene Monomer

SINCE the war has greatly accelerated the production of plastics and synthetic rubber, industrial health problems in these industries have steadily mounted. One of these problems has grown out of the use of styrene monomer in their manufacture, and the danger of toxic poisoning to workers from the concentration of fumes in the air of workrooms.

How Workers Are Affected

A colorless liquid, styrene monomer has a pungent odor that warns of any serious concentration in the atmosphere and may thus help avoid immediate injury to workmen. Up to the present time, however, no authoritative information has been available to guide industry in protecting workers from exposures which over a period of time might lead to chronic or subacute poisoning. In acute poisoning, styrene monomer acts primarily on the central nervous system. In subacute or chronic poisoning, however, it acts primarily as a lung irritant. Its action on the skin is similar to that of other aromatic solvents, such as benzene and toluene.

In order to furnish a guide by which industry may know whether its control of styrene monomer fumes is satisfactory, the ASA Sectional Committee on Allowable Concentrations of Toxic Dusts and Gases undertook recently to prepare an American War Standard defining the maximum concentration which can be permitted with safety to workers in the atmosphere of workplaces. Because of the importance of synthetic rubber and plastics in the war effort, the standard was developed under the ASA accelerated War Standard procedure, and in this way was completed in the least possible time. The standard itself was prepared by Dr. D. D. Irish of the Dow Chemical Company, and defines the permissible concentration as 400 parts of styrene monomer per 1,000,000 parts of air by volume for exposures of periods not exceeding eight hours. Not only does the standard define the concentration of fumes which may safely be permitted, but also specifies the sampling procedure to follow in determining the concentration.

To Be Reviewed After the War

Since little is yet known about the effects of exposure to styrene monomer over a long period of time, the standard will be reviewed after the war in the light of experience gained, and will either be approved as American Standard (possibly in revised form) or will be dropped entirely.

The American War Standard Allowable Concentration of Styrene Monomer, Z37.15-1944, is available from the American Standards Association at 20 cents per copy.

"Use Grades as Well as Brand Names," Says NC-RC

"There are a great number of unfamiliar brands of fruits and vegetables appearing on the grocers' shelves today. This makes it more important than ever before that grade labels based on standards be added to the information showing the brand name," declared Roger Wolcott, managing director of the National Consumer-Retailer Council, reporting on a survey just completed by the NC-RC.

The survey was made at the request of some of the consumer organizations affiliated with the Council. It covered 20 representative chain organizations with thousands of stores located in about 40 states, and was made in order to find out how many brands these stores carried before the war and how many brands are stocked today in canned tomatoes, canned peaches, canned corn, and canned peas.

One store reported carrying 30 packers' brands of canned corn and 35 packers' brands of canned peas, whereas only five packers' brands of canned corn and six packers' brands of canned peas were carried before the war. Another store reported carrying 12 packers' brands of canned tomatoes. Still another store, which before the war stocked only two packers' brands of canned peaches, today stocks 20 brands. All of these brands will not be found at the same time on the shelf, but the brands to be found in a store may change from week to week. On the whole, the stores have to take what they can get, the survey indicated.

"For the consumer this marked increase in the number of brands carried by a store makes her wartime shopping problems just that much more difficult," Mr. Wolcott concludes. "First, she is faced with a greater variety of brands than ever before. Second, many of these brands are 'war babies' and are unfamiliar to her. Third, she may find that the brands change from day to day in any given store. Opponents of grade labeling hold that brand names constitute a reliable buying guide and that grade designations are not needed. Proponents of grade labeling are equally in favor of brand names. But in a situation of this kind with such an avalanche of strange brands from which to choose, we believe that in addition to the brand name the consumer needs information defining the quality of the product inside the can. Were grade designations used in addition to brand names, the consumer would be able to buy intelligently despite wartime conditions."

Importance of protective measures for control of methanol fumes is emphasized by recent conversion of synthetic ammonia plants to production of methanol. The methanol will be used in place of alcohol for anti-freeze, and also for war purposes.

by H. H. Schrenk[1]

Chairman, Subcommittee on Methanol of Sectional Committee Z37 on Allowable Concentrations of Toxic Dusts and Gasses

Standard Helps Control Methanol Exposure[2]

THE importance of allowable concentrations of gases, vapors, fumes, dusts, and mists in establishing control procedures for promoting health and efficiency in industry is well recognized. The American Standards Association, through its committee Z37, has been promulgating such allowable concentrations for several years, and has just recently issued a standard for methanol—the fourteenth of this series.

At least three criteria may be used in establishing allowable concentrations: (1) pathological effects; (2) slight physiological effects which apparently produce no pathological damage but cause impairment of coordination and reaction time and tend to make workers more prone to accidents; and (3) discomfort. Allowable concentrations are established on the basis of laboratory tests on animals and humans, and also on the results of studies in industry in which there is a correlation between the concentrations of contaminant found in the air and the physiological effects produced.

In order that allowable concentrations be used properly, it is necessary to understand the purpose and limitations of such values. While the fundamental purpose of these standards is the promotion of health and efficiency, their practical use is for guidance in establishing control procedures to prevent harmful or objectionable concentrations from accumulating. Although such values are based upon physiological response, the occurrence of contaminant above the allowable concentration should not be assumed as proof of poisoning; conversely, exposures below the allowable concentration should not be accepted in themselves as evidence that poisoning cannot occur. In other words, allowable concentrations should be used as a measure of exposure similar to the determination of methanol or lead in the urine, or the determination of inorganic sulphates in exposure to benzol, and do not constitute a diagnosis of poisoning. The less the exposure the less the likelihood of poisoning.

Allowable Concentration of Methanol

At the time work was started on an American Standard for the allowable concentration of methanol, at least three values were in the literature; namely, 100, 200, and 380 parts per million. After careful consideration of the data available and particularly of newer data on the relationship between concentration of methanol in the air to methanol in the blood, it was decided that: "The allowable concentration of methanol (methyl alcohol) shall be 200 parts per 1,000,000 parts of air by volume, corresponding to 0.26 mg per liter at 25 C and 760 mm pressure, for exposures not exceeding a total of 8 hours daily." Past experience has indicated that this standard is a practical one and can be met without undue engineering difficulties.

Properties of Methanol

Methanol, which is also known as methyl alcohol, wood alcohol, and Columbian spirits, is a colorless water-clear liquid. It volatilizes readily at room temperature and may produce concentrations of vapor that

[1] Chief chemist, Health Division, Bureau of Mines.

[2] Published by permission of the Director, Bureau of Mines, U. S. Department of the Interior, Washington, D. C.

are dangerous to breathe. In its pure state its odor is not sufficiently characteristic, strong, or unpleasant to prevent exposure to such dangerous concentrations.

Industrial Applications

Methanol is widely used in industry as a solvent in the manufacture of pyroxylin plastics, varnishes, lacquers, textile soaps, and wood stains, and for many other solvent purposes. It is also used as an antifreeze, a denaturant for ethyl alcohol, and an intermediate in the synthesis of other organic compounds, particularly dyestuffs. One of the largest uses of methanol is in the manufacture of formaldehyde, which is used in the synthesis of phenolic resins.

Absorption and Effects of Methanol

The most likely cause of poisoning from methanol in industry is from the inhalation of vapors. Poisoning, however, has occurred from ingestion of methanol, and there is a possibility of systemic effects from absorption through the skin. In acute poisoning, methanol acts mainly as an anesthetic but also exerts a poisonous action on the nervous system. In chronic poisoning there appears to be a general accumulative injury to the organs. Symptoms that may be encountered are headache, weakness, dizziness, nausea and vomiting, blurring of vision, and in severe cases coma and death. On absorption into the body, methanol is distributed throughout the tissues and fluids upon the basis of their water content and, therefore, determination of methanol in the urine can be used to supplement air analysis in measuring the extent of exposure.

Determination of Methanol

Methanol in air can be readily determined by absorption in water and subsequent colorimetric determination. Although the procedures are relatively simple, analyses should be made only by trained and experienced persons. Physical methods, such as the use of the interferometer and combustible gas indicator, also may be used under some conditions after suitable calibration.

Application of Standard

When workers are known to be handling methanol, analysis should be made of the air in their breathing zones to determine the extent of methanol contamination, and control measures should then be instituted to prevent exposure to excessive concentrations.

American Standards defining allowable concentrations of toxic dusts and gases have already been completed for eleven toxic substances, as follows:

Benzene, Z37.4-1941
Carbon Disulfide, Z37.3-1941
Carbon Monoxide, Z37.1-1941
Chromic Acid and Chromates, Z37.7-1943
Formaldehyde, Z37.16-1944
Hydrogen Sulfide, Z37.2-1941
Lead and Certain of Its Inorganic Compounds, Z37.11-1943
Mercury, Z37.8-1943
Methanol, Z37.14-1944
Oxides of Nitrogen, Z37.13-1944
Toluene, Z37.12-1943

American War Standards have also been completed defining allowable concentrations for toxic dusts and gases which are widely used in war production. These will be reviewed after the war in light of the experience gained, and may be approved as American Standards, revised, or withdrawn. American War Standards completed so far cover:

Cadmium, Z37.5-1941
Manganese, Z37.6-1942
Metallic Arsenic and Arsenic Trioxide, Z37.9-1943
Styrene Monomer, Z37.15-1944
Xylene, Z37.10-1943

These standards have all been developed by the Sectional Committee on Allowable Concentrations of Toxic Dusts and Gases, Z37, under the chairmanship of William P. Yant, Director of Research and Development, Mine Safety Appliances Company.

Each of these standards may be obtained from the American Standards Association at 20 cents per copy.

American War Standards on Radio Approved as Canadian War Standards

The Canadian Engineering Standards Association reports approval as Canadian War Standards of a number of American War Standard specifications for radio components. This approval was facilitated by a liaison arrangement between Canadian interests and United States interests at the time of preparation of the standards, first through the American Standards Association, and now through the Army-Navy Electronics Standards Agency. Through this liaison representation, the Canadians had an opportunity of expressing their viewpoints at the time the standards were released in the United States.

The American War Standards now designated Canadian War Standards are as follows:

Electrical Indicating Instruments (2½- and 3½-Inch Round, Flush-Mounting, Panel-Type)—C39.2-1944
Shock Testing Mechanism for Electrical Indicating Instruments (2½- and 3½-Inch, Round, Flush-Mounting, Panel-Type)—C39.3-1943
Dimensions for External Radio-Frequency Thermocouple Converters (120 Milliamperes to 10 Amperes, Inclusive)—C39.4-1943
External Ammeter Shunts for Panel-Type Instruments—C39.5-1943
Ceramic Radio Insulating Materials, Class L—C75.1-1943
Steatite Radio Insulators—C75.2-1943
Fixed Mica-Dielectric Capacitors—C75.3-1942
Ceramic Radio Dielectric Materials, Class H—C75.4-1943
External Meter Resistors (Ferrule Terminal Styles)—C75.5-1943
Glass-Bonded Mica Radio Insulators—C75.6-1943
Fixed Composition Resistors—C75.7-1943
Glass Radio Insulators—C75.8-1943
Crystal Unit CR-1 ()AR—C75.11-1944
Fixed Ceramic-Dielectric Capacitors (Temperature-Compensating Type)—C75.12-1944

ASA Lists Free Standards Offered to Members

A NEW method has been instituted by the American Standards Association, starting with the May issue of INDUSTRIAL STANDARDIZATION, whereby free copies of new American Standards are made available to ASA Members. As all ASA Members know, one of the services of the American Standards Association is the distribution of free copies of each newly approved American Standard, the number of copies available to each Member depending upon the size of the membership. One copy of each new standard is available for the first $50 of annual membership, an additional copy for each $100 beyond the first $50.

Up to the present time, lists of new standards available to members have been distributed not more than twice or three times a year. The ASA staff is of the opinion, however, that many Company Members would find the standards more useful if they could receive them nearer the date of publication. For this reason, the list is now being published each month in INDUSTRIAL STANDARDIZATION. In order to avoid confusion and duplication, only the person or persons in each Member organization authorized to return the list requesting free standards may do so. Anyone interested in obtaining standards, therefore, should proceed as follows:

1. Find out if your company is a member of the American Standards Association, and if so, how many copies of free standards it is entitled to receive. (Company Members of ASA receive one free copy of each newly approved American Standard for the first $50 of annual membership, and an additional copy for each $100 beyond this.)
2. Find out who in your company has been named as representative to return this application. (We can give you his name, if necessary.)
3. Check the standards you want.
4. Give your list to your company representative, who will return it to us.

In case you want more copies of a standard than your company is entitled to receive, the services of the American Standards Association also make it possible for you to order additional copies at 20 percent discount.

If your company is not a member of the American Standards Association, and you would like to buy copies of the standards listed, you may use the application as an order blank. We should appreciate it if you would send payment (check, money order, or postage stamps) with your order, however.

This month's Company Member Application for Free Standards is on the opposite page.

New ASA Company Members

The following 21 organizations have recently joined the American Standards Association as Company Members:

Allen B. DuMont Laboratories, Inc, Passaic, New Jersey.
Belmont Radio Corporation, Chicago, Illinois.
Bliley Electric Company, Erie, Pennsylvania.
Cambridge Instrument Company, Inc, New York, N. Y.
Collins Radio Corporation, Cedar Rapids, Iowa.
Fairchild Camera & Instrument Corporation, Jamaica, N. Y.
Fairchild Engine & Airplane Corporation, New York, N. Y.
Hazeltine Electronics Corporation, Little Neck, N. Y.
Hoffman Radio Corporation, Los Angeles, California.
Howard Manufacturing Company, Council Bluffs, Iowa.
International Resistance Company, Philadelphia, Pennsylvania.
Kansas City Public Library, Kansas City, Missouri.
Keystone Manufacturing Company, Boston, Massachusetts.
Philharmonic Radio Corporation, New York City.
Radio Receptor Company, Inc, New York, N. Y.
Schuttig Engineering Company, Washington, D. C.
F. W. Sickles Company, Chicopee, Massachusetts.
Sparks-Withington Company, Jackson, Michigan.
Struthers-Dunn, Inc, Philadelphia, Pennsylvania.
Transmitter Equipment Manufacturing Company, Inc, New York, N. Y.
Wheeling Stamping Company, Wheeling, West Virginia.

As ASA members these companies will receive copies of the ASA monthly magazine, free copies of newly published standards, 20 percent discount on all American Standards, use of the library and information service, and direct and authoritative information about standardization projects.

British Standard Offers Aid On Office Organization

A new British standard, Office Organization and Practice (B.S. 1100: Part 10: 1943), will be of interest to all concerned with the standardization and systematization of office routines. Published by the British Standards Institution as one of a series of booklets on office aids to the factory, the standard was based on a draft prepared by a committee of the (British) Office Management Association, and gives good practice recommendations covering a wide field of office techniques.

The introduction summarizes the duties of an office as follows: (1) obtaining, arranging, and submitting information as required by the management; (2) issuing instructions and any other kind of written communication on behalf of the management; and (3) keeping accounts, controlling cash, and maintaining all other records necessary for carrying on the business. Specific procedures for these jobs are discussed under the following headings: planning of a system, forms, machines and devices, accommodation, personnel organization, training, coordination, control, typing, filing, communications and sales invoicing.

Copies of the British Standard can be obtained through the American Standards Association library.

June 1944

Company Member Application for Free Standards

(Must be returned by October 2, 1944)

NAME ..... STREET .....

Person eligible to return list (We can give you his name, if necessary)

COMPANY ..... CITY AND STATE .....

How to Order Your American Standards

- Find out who in your company has been named as representative to return this application.
- Check the standards you want.
- Give your list to your company representative, who will return it to us. The duplicate below is for your files.
- Your company is entitled to a special membership discount of 20 percent on copies over and above your quota. (Company Members of the American Standards Association are entitled to one free copy of each newly approved American Standard for the first $50 of annual membership, and an additional copy for each $100 beyond this.)

No. of Copies	ASA Number	Sponsor's Number	Title of Standard	Price
.....	C59.18-1944	ASTM D411-42	Shellac Used for Electrical Insulation, Methods of Testing	$ .25
.....	D11.1-1943		Pre-Timed, Fixed Cycle, Traffic Signal Controllers	.25
.....	G8.3-1944	ASTM A111-43	Zinc-Coated (Galvanized) Iron or Steel Telephone and Telegraph Line Wire, Specifications for	.25
.....	G8.9-1944	ASTM A116-39	Zinc-Coated (Galvanized) Iron or Steel Farm-Field and Railroad Right-of-Way Wire Fencing, Specifications for	.25
.....	G8.10-1944	ASTM A121-39	Zinc-Coated (Galvanized) Iron or Steel Barbed Wire, Specifications for	.25
.....	G8.11-1944	ASTM A218-41	Zinc-Coated Steel Wire Strand (Class B and Class C Coatings), Specifications for	.25

(*Continued on next page*)

DUPLICATE FOR YOUR FILES

June 1944

Company Member Application for Free Standards

NAME ..... COMPANY .....

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.....	G8.11-1944	ASTM A218-41	Zinc-Coated Steel Wire Strand (Class B and Class C Coatings), Specifications for	.25

(*Continued on next page*)

No. of Copies	ASA Number	Sponsor's Number	Title of Standard	Price
.....	L18.4-1944 L18.5-1944 L18.6-1944		Leather Coats, Leather Overalls, Leather Sleeves — American War Standard Specifications for Protective Occupational (Safety) Clothing	.30
.....	Z21.10-1944		Gas Water Heaters, Approval Requirements for	1.00
.....	1944 Addenda to Z21.15-1942		Listing Requirements for Gas Valves, Addenda to	.20
.....	Z32.10-1944		Graphical Symbols for Electronic Devices	.20
.....	Z32.11-1944		Coordination of Electrical Graphical Symbols (American War Standard)	.10
.....	Z49.1-1944		Safety in Electric and Gas Welding and Cutting Operations (American War Standard)	.40
.....	Z52.4-1944		Method of Determining Freedom from Travel Ghost in 16-mm Sound Motion Picture Projectors (American War Standard)	.10
.....	Z52.5-1944		Method of Determining Resolving Power of 16-mm Motion Picture Projector Lenses (American War Standard)	.10
.....	Z52.6-1944		Method of Determining Picture Unsteadiness of 16-mm Sound Motion Picture Projectors (American War Standard)	.10
.....	Z52.7-1944		Method of Determining Uniformity of Scanning Beam Illumination of 16-mm Sound Motion Picture Projectors (American War Standard)	.10
.....	Z52.8-1944		Multi-frequency Test Film Used for Field Testing 16-mm Sound Motion Picture Projection Equipment, Specifications for (American War Standard)	.10
.....	Z52.9-1944		3000-Cycle Flutter Test Film for 16-mm Sound Motion Picture Projectors, Specification for (American War Standard)	.10
.....	Z52.10-1944		Buzz-Track Test Film for 16-mm Sound Motion Picture Projectors, Specifications for (American War Standard)	.10
.....	Z52.11-1944		Sound-Focusing Test Films for 16-mm Sound Motion Picture Projection Equipment, Specification for (American War Standard)	.10
.....	Z52.16-1944		Sound Records and Scanning Area of 16-mm Sound Motion Picture Prints (American War Standard)	.10
.....	Z52.17-1944		400-Cycle Signal Level Test Film for 16-mm Sound Motion Picture Projection Equipment, Specifications for (American War Standard)	.10
.....	Z52.20-1944		Positive and Negative Splices for Processed 16-mm Sound Motion Picture Film (American War Standard)	.10
.....	Z52.24-1944		Reduction Printing from 35-mm to 16-mm Motion Picture Film—16-mm Positive Aperture Dimensions and Image Size for Positive Prints Made from 35-mm Negatives (American War Standard)	.10

No. of Copies	ASA Number	Sponsor's Number	Title of Standard	Price
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.....	Z21.10-1944		Gas Water Heaters, Approval Requirements for	1.00
.....	1944 Addenda to Z21.15-1942		Listing Requirements for Gas Valves, Addenda to	.20
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.....	Z52.24-1944		Reduction Printing from 35-mm to 16-mm Motion Picture Film—16-mm Positive Aperture Dimensions and Image Size for Positive Prints Made from 35-mm Negatives (American War Standard)	.10

Standard Railroad Gage Plays War Role

The military importance of standards, brought out many times in recent war operations, has been illustrated again during the Russian advance in Poland. It has been pointed out by Major George Fielding Eliot, military writer, that the frequent delays in the progress of the Russian offensive westward are in great part caused by the necessity of converting railroads in newly occupied territory from the standard gage used in most European countries to the broad gage peculiar to Russian railroads.

The Russians are limited in truck transport, and have been able to commandeer few standard gage locomotives. Their own broad gage locomotives are needed to bring up supplies to the front, and the railroads in non-Russian territory have to be converted so that the Russian rolling stock may be used. This reconversion involves not only the shifting of rails along uninterrupted sections of line, but also rebuilding of yards and bridges, and placing of new switches.

All told, the changes needed are so extensive that it is hazarded that the Russians, when moving into Poland and Roumania, will find it easier to build standard gage locomotives and cars than to attempt to convert the railroad lines of occupied countries to broad gage.

AHEA Declares "Free Choice" of Consumer Depends on Standards

Consumers' post-war aims include standards and specifications for canned goods with labeling to tell the consumer more specifically what she is buying, according to the *Consumer Education Service* published by the American Home Economics Association. Such a program would also be of benefit to post-war business, the Association believes. Explaining its position on post-war standards for consumer goods, the AHEA declares:

"We believe that 'free choice', a vital element of any consumer program, is also vital to the 'free market' much talked about by businessmen. Without free choice and a free market, the competitive system cannot function. Many traditional practices of manufacturers and retailers leave consumers without an opportunity to exercise real freedom of choice based upon an intelligent appraisal of goods.

"In order to have 'free choice', consumers must be provided with adequate and accurate statements of fact defining the relative quality and performance of staple goods available. The most direct way of giving such statements of fact is through the use of standards and specifications. These should be based on such measurements and descriptions of content, construction, and performance of goods as will accurately indicate their relative value or performance in use. Standards and specifications should be stated in the simplest possible terms. A good example is the A, B, C grading system now used for describing the qualities of canned fruits and vegetables.

"When the development of standards is not possible because of technical limitations, terms should be agreed upon so that like merchandise will be described in the same way by all producers, distributors, and consumers. Thus a language of the marketplace which means the same thing to sellers and buyers would be established. Without such terms, selling price has little meaning as an indicator of the relative value of any product or service to the individual consumer.

"We ask for the use of standards and specifications as a method of differentiating qualities of merchandise. We specifically are not using the word 'standards' in the sense of regimentation—a method of classifying human wants. We do not advocate the elimination of brand differentiation. A standard is not a substitute for a brand name nor does the use of a standard imply the elimination of a brand name. The brand name should be an integral part of an informative label.

"We believe that the most satisfactory method for communication of information from manufacturer, through retailer, to consumer is a label attached to the product. Labels are useful insofar as they state sufficient facts about the construction, grade, performance, or serviceability of the product to enable the consumer to judge relative values; instruct the consumer on methods of care which prolong the usefulness of the product; and identify the maker or distributor by brand name or otherwise. Cooperative action of retailers, manufacturers, and consumers is called for if the results are to be mutually satisfactory."

National Bureau of Standards Calibrates Low-Gloss Standards

Manufacturers of camouflage materials and the branches of the service which use them will be interested in the announcement by the National Bureau of Standards that they are about to issue calibrated low-gloss standards. These standards are calibrated on the scale defined by Procedure A of ASTM Tentative Method D523-41T for the specular gloss of paint finishes. They are intended to be used in determining whether camouflage materials meet usual specifications for low gloss.

These standards will fill a very present need for a reliable method of making this kind of measurement, as present practices are far from uniform, the National Bureau of Standards explains. Measurements of camouflage materials, in different laboratories but on supposedly identical apparatus, have yielded widely differing results.

The standards will be issued in sets of 82 low-gloss standard panels (NBS test fee schedule 4315z) costing $20.00.

New Members of ASA Standards Council

Several changes in ASA Standards Council membership have taken place recently.

E. K. Post, long associated with the Pennsylvania Railroad, has retired from his position as Signal Engineer, and also as an alternate representative of the Association of American Railroads on the Standards Council of the ASA. A. S. Haigh, Assistant Signal Engineer of the New York Central System, succeeds Mr. Post as the representative of the AAR. Mr. Haigh has been associated with the ASA as a member of the sectional committees on Pipe Flanges and Fittings (B16) and on Wire and Sheet Metal Gages (B32).

Colonel B. L. Neis, representative of the War Department, has succeeded Lieutenant Colonel John H. Fitch. Colonel H. B. Hambleton and Lieutenant Colonel G. R. Gaillard have been designated to act as alternate representatives for Colonel Neis.

The Bureau of Aeronautics of the Navy Department has appointed Rear Admiral DeWitt C. Ramsey with Commander E. C. Beck as alternate. Commander E. N. Parker will replace Commanders Couble and Huckert as alternates since the latter are at present on sea duty.

E. F. Lundeen has been succeeded by L. H. Winkler as a representative of the American Iron and Steel Institute.

The American Society of Civil Engineers has appointed Rudolph P. Miller representative to succeed Eugene L. MacDonald, with Maurice N. Quade serving as alternate.

F. O. Hoagland and M. E. Lange have been appointed representative and alternate representatives, respectively, of the National Machine Tool Builders Association.

Commander W. C. Wagner will act as representative of the ASA Electric Light and Power Group.

R. J. Kennedy has been designated to succeed W. T. Cameron as an alternate representative of the U. S. Department of Labor.

Louis R. Douglass has been appointed to succeed Wesley R. Nelson as a representative of the U. S. Department of the Interior.

Walter S. Paine succeeds R. L. Forney as the representative of the National Safety Council, with John M. Roche as alternate.

J. E. Stark, appointed representative of the Manufacturers Standardization Society of the Valve and Fittings Industry, succeeds A. M. Houser.

Agreement Reached for Cooperation on Safety

The War Production Board and the U. S. Department of Labor have announced an operating agreement through which the two agencies will pool their forces to reduce the toll of industrial accidents that annually result in a loss of life six times as great as the nation sustained at Pearl Harbor.

The agreement provides that the Safety and Health Branch of the Labor Department's Division of Labor Standards will carry out such activities as the following:

Cooperate with management, labor, state labor departments, the American Standards Association, and other safety agencies in drafting safety codes and regulations.

Analyze and serve as a central clearing house for information in safety laws and regulations and their administration.

Prepare and publish pamphlets, leaflets, and posters on industrial safety and health.

Ruth O'Brien Appointed to Reconversion Committee

Miss Ruth O'Brien has been appointed by Donald M. Nelson, Chief of the War Production Board, to serve as representative of the consumer interest on the new Advisory Committee for Civilian Policy. This committee will collaborate closely with the Office of Civilian Requirements and will confer with Mr. Nelson on reconversion and other post-war problems in the field of civilian production.

Miss O'Brien is a former member of the Standards Council of the American Standards Association and at present an alternate on the Advisory Committee on Ultimate Consumer Goods and a member of ASA sectional committees. She is also vice-chairman of the National Consumer-Retailer Council and head of the Division of Textiles and Clothing of the Bureau of Human Nutrition and Home Economics.

Recent Publications Related to Standardization

The following publications closely related to standards have been issued recently, and may be of interest to ASA Members:

Symposium on the Significance of the Hardness Test of Metals in Relation to Design. (Presented at the Forty-sixth Annual Meeting of the ASTM, June 29, 1943). American Society for Testing Materials, 260 South Broad Street, Philadelphia, Pa. 75 cents.

This symposium includes notes on the identation hardness test by Professor J. M. Lessells, with conversion tables and a short selected bibliography. It also includes technical papers on present types of hardness tests by Professor S. R. Williams, and on fundamentals of hardness testing by S. L. Hoyt. The tentative hardness conversion tables for steel showing the relationship between diamond pyramid hardness, Rockwell and Brinnell values (ASTM E 48), are included.

Guide to Weldability of Steels. Welding Research Council, 29 West 39th Street, New York 18, N. Y. $1.00.

Given a design and a welding process for fabricating it, this book presents the data necessary for a readily reproducible method by means of which the effect of welding procedure upon the ductility of the heated zone adjacent to the weld in plain carbon and low-alloy steels can be determined. Based on original investigation carried out at Lehigh University and issued by the National Defense Research Committee as Progress Report, OSRD No. 1110, Serial No. M-30, "Evaluation of Weldability by Direct Welding Tests," by G. E. Doan, R. D. Stout and J. H. Frye, Jr.

Standards Issued by Associations and Government

(For new American Standards see page 125)

For the information of ASA Members, the American Standards Association gives here a list of standards received by the ASA Library during the last month. The list given below includes only those standards which the ASA believes are of greatest interest to Members in connection with their war production problems.

These standards may be consulted by ASA Members at the ASA Library, or copies may be obtained from the organization issuing the standard. The address of the organization is given for your convenience.

Associations and Technical Societies

American Society for Testing Materials (260 South Broad Street, Philadelphia 2, Pa.)

The letter T following a designation indicates the standard is Tentative.

Enclosures for Small Testing Machines for Tests at Subnormal and Supernormal Temperatures of Electrical Insulating Materials and Plastics, Tentative Specifications for D760-44T

Servicing Units for Tests at Subnormal and Supernormal Temperatures of Electrical Insulating Materials and Plastics, Tentative Specifications for D761-44T

Emergency Methods

Chemical Analysis for Lead, Copper, and Iron in Lubricating Oils ES-38

Chemical Analysis for Metals in Lubricating Oils ES-39

Chemical Analysis for Phosphorus in Lubricating Oils ES-37

Chlorine in Lubricating Oils by Bomb Method ES-36

Heating, Piping and Air Conditioning Contractors National Association (1250 Sixth Avenue, New York 20, N. Y.)

Comfort Air Conditioning (Part IV) Fourth Edition

National Board of Fire Underwriters (85 John Street, New York 7, N. Y.)

New Type of Bomb for Investigation of Pressures Developed by Dust Explosions March 1944

National Electrical Manufacturers Association (155 East 44th Street, New York 17, N. Y.)

Lightning Arrester Standards Publication No. 44-89 February 1944

Mining and Industrial Locomotive Standards Publication No. 44-96 May 1944

Society of Automotive Engineers (29 West 39 Street, New York 18, N. Y.)

Cap, Thread Protector (Inboard)—Dual Propeller Shafts AS 170 May 1, 1944

Nomenclature, Aircraft Air Conditioning Equipment ARP 147 May 1, 1944

Nomenclature, Aircraft Oxygen Equipment ARP 171 May 1, 1944

Operating Instructions for Aircraft Engines AS 177 May 1, 1944

Propeller Hub-Single Rotation AS 180 May 1, 1944

Service Bulletins for Aircraft Engines (Preparation of) AS 174 May 1, 1944

Splines, Involute AS 84A May 1, 1944

Tables of Limits and Lubrication Charts AS 176 May 1, 1944

The above standards are available in a complete set in loose-leaf form plus a new index for 65¢

U. S. Government

(Wherever a price is indicated, the publication may be secured from the Superintendent of Documents, Government Printing Office, Washington, D. C. In other cases, copies may be obtained from the government agency concerned.)

National Bureau of Standards (Washington, D. C.)

Commercial Standards

Bituminized-Fibre Drain and Sewer Pipe CS116-44 5¢

Simplified Practice Recommendations

Bronze Pop Safety Valves, and Bronze, Iron, and Steel Relief Valves R204-44 5¢

Containers and Packages for Household Insecticides (Liquid Spray Type) R203-44 5¢

Alphabetical List Revised to June 1, 1944 LC 750

Federal Specifications Executive Committee (U. S. Treasury Department, Washington, D. C.)

Federal Specifications

(Copies available from Superintendent of Documents, Government Printing Office, Washington, D. C.)

Bandages; cotton, elastic (washable) JJ-B-102 June 1, 1944

Brushes:

glue, round (Amendment 2) (superseding Amendment 1 and E-H-B-301, 2/17/42) H-B-301 June 1, 1944

sweeping, floor, hair (Amendment 5) H-B-651 June 1, 1944

Bunting:

cotton mercerized (Amendment 5) CCC-B-791a June 1, 1944

wool (Amendment 3) CCC-B-801 June 1, 1944

Denim:

shrunk (superseding CCC-D-151a and CCC-D-161) CCC-D-181 June 1, 1944

Denim—Continued

unshrunk (superseding CCC-D-156a and CCC-D-171) CCC-D-186 June 1, 1944

Gloves, rubber; surgeons' (Amendment 1) ZZ-G-421a June 1, 1944

Griddles; cast-iron (Amendment 1) RR-G-681 June 1, 1944

Incubators; bacteriological, air-circulating-type GG-I-488 June 1, 1944

Laundry-appliances and wool-presses (tailor-shop) Amendment 2) OO-L-131c May 15, 1944

Pans, bake and roasting; steel (Amendment 1) RR-P-55 June 1, 1944

Paper; filtering UU-P-236 June 1, 1944

Pliers; and nippers (Amendment 1) GGG-P-471 June 15, 1944

Sheeting; rubber (Amendment 1) (superseding E-ZZ-S-311a, 6/5/43) ZZ-S-311a June 1, 1944

Turnbuckles (Amendment 1) FF-T-791 June 1, 1944

Cancellations

Iron and steel; sheet, zinc-coated (galvanized) E-QQ-I-706a (dated 5/6/42)

Rope; manila E-T-R-601a (dated 2/20/43)

Terne-plate (long-ternes) E-QQ-T-191 (dated 5/6/42)

Terne-plate (roofing-tin) E-QQ-T-201 (dated 5/6/42)

U. S. Department of War (Washington, D. C.)

Index of United States Army and Federal Specifications Used by the War Department January 1944 $1.50

War Food Administration (Washington, D. C.)

Milled Rice, United States Standards for April 1, 1944

Army Air Forces (Washington, D. C.)

Index to Army Air Forces Specifications May 1944

British Standard Defines Terms Used in Telecommunication

Review by H. M. Turner[1]

President, Institute of Radio Engineers

THE Glossary of Terms Used in Telecommunication, published in 1943 by the British Standards Institution and received recently by the American Standards Association Library, covers essentially the same subject matter as the sections on Electrocommunication and Electronics of the American Standard Definitions of Electrical Terms, C42-1941 (pages 201-236). The British Standard, however, includes more terms than does the American Standard.

For a critical evaluation of the Glossary, a more extensive study would be required than is now possible; however, a careful reading shows that the British and American Standards are in substantial agreement although the phraseology is frequently different.

Anyone who has had experience in formulating definitions will recognize the difficulties involved, and it is not surprising, therefore, that an American engineer disagrees with some of the British definitions. For example, the British Standard states that "The reciprocal 1/Q is the power factor," whereas 1/Q is not the power factor except where the reactive component is essentially equal to the impedance. The British definition of a "two-wire circuit" precludes the use of conventional types of generators and loads having a conductive path, since the two wires would no longer be insulated. The definition states that a two-wire circuit is "a circuit formed of two conductors insulated from each other." From the British definition it appears that any capacitor of low impedance is a by-pass capacitor regardless of how it is used; and to the American way of thinking the definition for "retardation coil" instead of "a coil designed to offer a high impedance to currents of voice frequency," should read "a coil designed to offer a high 'reactive' impedance to currents of voice frequency."

[1] Professor of Electrical Engineering, Yale University; representative of the Institute of Radio Engineers on the ASA Electrical Standards Committee, and member of the United States National Committee of the International Electrotechnical Commission.

The British Standard Glossary of Terms Used in Telecommunication, BS 204:1943, defines technical terms used in speech testing and acoustics, in transmission practice, for electrical characteristics of transmission circuits and equipment, in telegraphy, telephony, radiocommunication, television, radio direction-finding, and for fire alarms.

Copies may be obtained from the American Standards Association for $1.25.

Some of the terms used by the British are not used in the United States, or at least are not familiar to this reviewer. These include: hysteresis factor; psophometric voltage; psophometer; logatrom; chronopher; omni-aerial; and also the A1, A2, A3, A4, A5, and B types of waves. The term "singing suppressor" has an ominous sound to one who enjoys good music, but the technical meaning is clear in the definition. The fact that "double-phantom," "quadruple-phantom," and "octuple-phantom" are defined raises the question as to whether these circuits are used in England. I am sure they are not used in the United States for such use would restrict the flexibility of the wire system.

The terms "klystron" and "rhumbatron" are defined in the British Glossary for the first time in any official standards publication.

The Glossary has a very complete and satisfactory index that makes the material readily available.

There would be a distinct advantage in the standardizing bodies in this country and Great Britain critically studying the definitions of the American Standard Definitions for Electrical Terms, C42-1941, and those of the British Standard Glossary of Terms Used in Telecommunication, BS 204:1943, with the hope that after the war a still better agreement can be reached.

ASA Standards Activities

American Standards

American Standards Available Since Our May Issue

Gas Water Heaters, Approval Requirements for (Revision of Z21.10-1941) Z21.10-1944 $1.00
Sponsor: American Gas Association

Listing Requirements for Gas Valves, 1944 Addenda to Z21.15-1942 20¢
Sponsor: American Gas Association

Methods of Test for Impact Resistance of Plastics and Electrical Insulating Materials (ASTM D256-41T) C59.11-1944 25¢
Sponsor: American Society for Testing Materials

Specifications for Pre-Timed Fixed Cycle Traffic Signal Controllers D11.1-1943 25¢
Sponsor: Institute of Traffic Engineers

American Standards Approved Since Our May Issue

Allowable Concentration of Formaldehyde Z37.16-1944
Endorsing Sponsor: Conference of State and Provincial Health Authorities of North America

Motion Pictures Z22
Sponsor: Society of Motion Picture Engineers
- Cutting and Perforating Negative Raw Stock (35-mm) Z22.34-1944
- Cutting and Perforating Positive Raw Stock (35-mm) Z22.36-1944
- Raw Stock Cores (35-mm) Z22.37-1944
- Raw Stock Cores (16-mm) Z22.38-1944
- Screen Brightness (35-mm) Z22.39-1944

Safety Code for Building Construction A10.2-1944
Sponsors: American Institute of Architects; National Safety Council

Standards Being Considered by ASA for Approval

Excavations and Foundations A56/13
Sponsor: American Society of Civil Engineers

Slide-Film Projectors, Specifications for Z38.7.15
Sponsor: Optical Society of America

Standards Submitted to ASA Since Our May Issue

Photography and Cinematography Z38
- Designation of Emulsion Side of Photographic Sheet Films Z38.1.42
- Designation for Thickness of Photographic Paper Z38.1.44
- Dimensions for Lantern Slides Z38.7.13
- Dimensions for Leaders, Trailers, and Roll Film for Aerial Photography Z38.1.41
- Dimensions of Front Mounts for Camera Lenses Z38.4.10
- Dimensions of Inch Size Photographic Papers Z38.1.43
- Practice for Temperature of Processing Solutions Z38.8.1
- Specifications for Contact Printers Z38.7.10
- Specifications for Lantern Slide Projectors Z38.7.14
- Specifications for Masks (Separate) Z38.7.12
- Specifications for Projectors for Opaque Materials for Use in Small Auditoriums Z38.7.4
- Specifications for Printing Frames Z38.7.11

Sound Level Meters for Measurement of Noise and Other Sounds, Revision of the American Tentative Standards (Z24.3-1936) Z24.3

American War Standards

War Standards Approved and Published Since Our May Issue

Fixed Paper-Dielectric Capacitors (Hermetically Sealed in Metallic Cases) C75.16-1944 60¢

Method of Noise Testing Fixed Composition Resistors C75.17-1944 20¢

Photography and Cinematography Z52
- Contact Printing of 16-mm Motion Picture Film—Printer Aperture Dimensions for Contact Printing 16-mm Positive from 16-mm Negative Z52.26-1944 10¢
- Contact Printing of 16-mm Motion Picture Film—Printer Aperture Dimensions for Reversal and Color Reversal Duplicate Prints Z52.27-1944 10¢
- Method of Determining Uniformity of Scanning Beam Illumination of 16-mm Sound Motion Picture Projectors Z52.7-1944 10¢
- Positive and Negative Splices for Processed 16-mm Sound Motion Picture Film Z52.20-1944 10¢
- Reduction Printing from 35-mm to 16-mm Motion Picture Film—Negative Aperture Dimensions and Image Size for 16-mm Duplicate Negatives Made from 35-mm Positive Prints Z52.25-1944 10¢
- Reduction Printing from 35-mm to 16-mm Motion Picture Film—16-mm Positive Aperture Dimensions and Image Size for Positive Prints Made from 35-mm Negatives Z52.24-1944 10¢

Screw Threads of Truncated Whitworth Form B1.6-1944 50¢

Volume Controls (Home Receiver Replacement Type) C16,10-1944 20¢

War Standards Approved Since Our May Issue

Specification for 16-mm Motion Picture Release Prints Z52.3-1944

List of American War Standards

Accuracy of Engine Lathes B5.16-1941 25¢

Allowable Concentrations of Toxic Dusts and Gases Z37
- Cadmium Z37.5-1941 20¢
- Manganese Z37.6-1942 20¢
- Metallic Arsenic and Arsenic Trioxide Z37.9-1943 20¢
- Styrene Monomer Z37.15-1944 20¢
- Xylene Z37.10-1943 20¢

Clothing—*See* Protective Occupational (Safety) Clothing; Women's Industrial Clothing

Code for Electricity Meters (Revision of Paragraph 827) C12WS-1942 10¢

Color, Specification and Description of Z44-1942 25¢

Domestic Gas Ranges, Approval Requirements Z21.1ES-1942 $1.00

Dry Electrolytic Capacitors (Home Receiver Replacement Type) C16.7-1943 20¢

Electrical Graphical Symbols, Coordination of Z32.11-1944 10¢

Electrical Measuring Instruments C39
- Electrical Indicating Instruments (2½- and 3½-Inch, Round, Flush-Mounting, Panel-Type) C39.2-1943 50¢
- External Ammeter Shunts for Panel-Type Instruments C39.5-1943 25¢

List of American War Standards—Continued

Electrical Measuring Instruments—Continued

- Shock-Testing Mechanism for Electrical Indicating Instruments (2½- and 3½-Inch, Round, Flush-Mounting, Panel-Type) C39.3-1943 25¢
- Dimensions for External Radio-Frequency Thermocouple Converters (120 Milliamperes to 10 Amperes, Inclusive) C39.4-1943 10¢

Gas Water Heaters, Approval Requirements Z21.10WS-1942 $1.00

Machine Tool Electrical Standards C74-1942 40¢

Military Radio Equipment and Parts C75

- Ceramic Radio Insulating Materials, Class L C75.1-1943 20¢
- Ceramic Radio Dielectric Materials, Class H C75.4-1943 20¢
- Crystal Unit CR-1 ()AR C75.11-1944 25¢
- Dynamotors C75.13-1944 35¢
- External Meter Resistors (Ferrule Terminal Styles) C75.5-1943 25¢
- Fixed Ceramic-Dielectric Capacitors C75.12-1944 35¢
- Fixed Composition Resistors C75.7-1943 60¢
- Fixed Mica-Dielectric Capacitors C75.3-1943 50¢
- Glass Radio Insulators C75.8-1943 50¢
- Glass-Bonded Mica Radio Insulators C75.6-1943 25¢
- Porcelain Radio Insulators C75.14-1944 50¢
- Power-Type Wire-Wound Rheostats C75.9-1944 50¢
- Steatite Radio Insulators C75.2-1943 50¢
- Toggle Switches C75.15-1944 50¢
- Variable Wire-Wound Resistors (Low Operating Temperature) C75.10-1944 40¢

Photography and Cinematography Z52

- Specification for Class I Service Model 16-mm Sound Motion Picture Projection Equipment Z52.1-1944
- Method of Determining Freedom from Travel Ghost in 16-mm Sound Motion Picture Projectors Z52.4-1944 10¢
- Method of Determining Resolving Power of 16-mm Motion Picture Projector Lenses Z52.5-1944 10¢
- Method of Determining Picture Unsteadiness of 16-mm Sound Motion Picture Projectors Z52.6-1944 10¢
- Specification for Multi-Frequency Test Film Used for Field Testing 16-mm Sound Motion Picture Projection Equipment Z52.8-1944 10¢
- Specification for 3,000-Cycle Flutter Test Film for 16-mm Sound Motion Picture Projection Equipment Z52.9-1944 10¢
- Specification for Buzz-Track Test Film for 16-mm Sound Motion Picture Projectors Z52.10-1944 10¢
- Specification for Sound-Focusing Test Film for 16-mm Sound Motion Picture Projectors Z52.11-1944 10¢
- Sound Records and Scanning Area for 16-mm Sound Motion Picture Prints Z52.16-1944 10¢
- Specification for 400-Cycle Signal Level Test Film for 16-mm Sound Motion Picture Projection Equipment Z52.17-1944 10¢

Photographic Exposure Computer Z38.2.2-1942 $1.00

Pressure Ratings for Cast-Iron Pipe Flanges and Flanged Fittings, Class 125 B16.1-1943 10¢

Pressure-Temperature Ratings for Steel Pipe Flanges, Flanged Fittings, and Valves (Revision of Tables 6 to 11, inclusive. American Standard B16e-1939) B16e5-1943 25¢

Protective Lighting for Industrial Properties A85-1942 50¢

Protective Occupational Footwear Z41

Men's Safety Shoes

- Men's Safety-Toe Shoes Z41.1-1944
- Men's Conductive Shoes Z41.3-1944
- Men's Explosives-Operations (Non-sparking) Shoes Z41.4-1944
- Men's Electrical-Hazards Shoes Z41.5-1944

} In one volume 40¢

List of American War Standards—Continued

Protctive Occupational Footwear—Continued

Women's Safety Shoes

- Women's Safety-Toe (Oxford) Shoes Z41.2-1944
- Women's Safety-Toe (High) Shoes Z41.7-1944
- Women's Explosives-Operations (Non-sparking) Shoes Z41.8-1944
- Women's Conductive Shoes Z41.9-1944

} In one volume 40¢

Protective Occupational (Safety) Clothing L18

- Leather Aprons L18.1-1944 formerly Z51.1-1944
- Leather Cape Sleeves and Bibs L18.2-1944 (formerly Z51.2-1944)
- Leather Leggings (Knee Length) L18.3-1944 (formerly Z51.3-1944)

} In one volume 30¢

- Leather Coats L18.4-1944
- Leather Overalls L18.5-1944
- Leather Sleeves L18.6-1944

} In one volume 30¢

Quality Control Z1

- Guide for Quality Control Z1.1-1941
- Control Chart Method of Analyzing Data Z1.2-1941

} In one volume 75¢

- Control Chart Method of Controlling Quality During Production Z1.3-1942 75¢

Replacement Parts for Civilian Radio C16

- Dry Electrolytic Capacitors (Home Receiver Replacement Type) C16.7-1943 20¢
- Fixed Paper-Dielectric Capacitors (Home Receiver Replacement Type) C16.6-1943 20¢
- Home Radio Replacement Parts, Simplified List C16.8-1943 20¢
- Power and Audio Transformers and Reactors (Home Receiver Replacement Type) C16.9-1943 25¢

Safety in Electric and Gas Cutting and Welding Operations Z49.1-1944 40¢

Straight Screw Threads for High-Temperature Bolting B1.4-1942 25¢

Women's Industrial Clothing L17

- Bungalow Aprons and Wrap-around and Coat Style Dresses L17.1-1944 25¢
- Jackets, Shirts, and Aprons L17.3-1944 25¢
- Regular and Princess Model Coat Style Dresses L17.4-1944 20¢
- Slacks, Dungarees, Overalls, and Coveralls L17.2-1944 25¢

War Standards Under Way

Color Code for Lubrication of Machinery Z47

Cylindrical Fits B4

Machine Tool Electrical Standards, Revision of C74-1942

Protective Occupational (Safety) Clothing L18 (Formerly Z51)

- Welders' Leather Gauntlet Gloves L18.7
- Protective Leather Gloves, Steel Stapled L18.8
- Asbestos Gloves L18.9
- Asbestos Gloves, Leather Reinforced L18.10
- Asbestos Mittens L18.11
- Asbestos Mittens, Leather Reinforced L18.12
- Women's Safety and Powder Caps L18.13

Resistance Welding Equipment C52

- Electrodes C52.3
- Specifications for Design and Construction of Resistance Welding Equipment C52.4

Screw Threads B1

- Acme Screw Threads for Special Purposes B1.5

New Projects Approved

Prefabricated Construction (Part of A55)

Safety Color Code

Safety Code to Safeguard the Use of Industrial X-Ray Equipment

Project Discontinued

Packages for Electronic Tubes Z45

News of ASA Projects

Allowable Concentration of Acrylonitrile (Z37)—

Copies of the proposed American War Standard have been sent to members of the committee and interested people throughout the country for comment and criticism. Acrylonitrile is used principally in the manufacture of synthetic rubber. It is a volatile liquid so toxic that acute poisoning from it may result in death. The proposed standard defines the amount of gas which can be safely permitted in the air of work-places.

Building Code Requirements for Fire Resistance and Fire Protection (A51)—

Letters have been sent out to members of industry and associations inviting them to name representatives on six new subcommittees. The several subcommittees, together with their

chairmen, are as follows: (1) Interior and Ceiling Finishes—H. M. Robinson, Underwriters' Laboratories Inc; Roofing—H. J. Schweim, Gypsum Association; (3) Protection of Openings—J. A. Neale, Underwriters' Laboratories Inc; (4) Height and Area Limitations—B. L. Wood, American Iron and Steel Institute; (5) Fire Resistance Ratings of Building Construction and Assemblies, including Fire Resistance Classification of Concrete—S. H. Ingberg, National Bureau of Standards; (6) Exterior Finishes—R. C. Corson, Associated Factories Mutual Fire Insurance Companies.

Cylindrical Fits (B4)—

The ASA War Committee met on June 6 and approved a draft of Part 1 of the proposed American War Standard on Cylindrical Fits before it was sent out to a canvass of industry. Part 1 covers Preferred Basic Diameters; Tolerances and Allowances; and Symbols for Holes, Shafts, and Fits. The committee decided further that work should be started on Part 2 of the standard, covering gaging specifications.

Excavations and Foundations (A56)—

The second draft of the proposed standard Building Code Requirements for Excavations and Foundations has been sent to letter ballot of ASA Committee A56.

Packages for Electronic Tubes (Z45)—

This ASA War Project has been discontinued. It was started in 1942 at the request of the War Production Board in the belief that approval as an American War Standard of a series of packages designed by a large tube manufacturer and specified in detail would be helpful to the war effort. It has since become evident that, due to further improvements, the packages in question have become obsolete and, also, that the tube manufacturers preferred to keep their further development as flexible as possible.

Photography and Cinematography (Z52)—

A first draft of proposed War Standard Specifications for 16-Mm Motion Picture Film Reels, Z52.33, has been sent to the subgroup of the subcommittee. Three proposed draft war standard specifications for photographic projection screens are also before subgroups. The first draft of Specification for Class 2 16-Mm Sound Motion Picture Projectors, Z52.13, is in preparation for consideration at a subcommittee meeting. The subgroup is now examining a draft of the proposed standard Dimensions for Film-Reel Spindles for 16-Mm Motion Picture Equipment, Z52.34. Motion Picture Film Nomenclature for Use in Studios and Processing Laboratories, Z52.14, is being sent to the subcommittee of ASA War Committee Z52. On June 21, the final meeting will be held by the subcommittee on the following proposed war standards: Service Model Photographic Exposure Meter (Z52.12); Acceptance of Photographic Exposure Meters (Z52.21); Calibration of Photographic Exposure Meters (Z52.22); and Abuse Testing Mechanism for Photographic Meters (Z52.30).

Safety Code to Safeguard the Use of Industrial X-Ray—

The U.S. Department of Labor, Division of Labor Standards, requested the project on the safe use of X-ray in industry which the ASA has initiated. In order to get the code to industry as quickly as possible, it is being developed under ASA war procedure. Because of the importance of this project in peacetime as well as during the war, it has also been suggested that work be continued under the regular sectional committee method of procedure with the National Bureau of Standards as sponsor.

Screw Threads of Truncated Whitworth Form (American Truncated Whitworth Threads) (B1.6)—

This American War Standard was approved by the ASA on June 19, 1944 and is available from the ASA office at 50 cents a copy.

Standardization in the Field of Photography (Z38)—

Proposed American Standard Practice for Conversions of Weights and Measures for Photographic Use (Z38.8.2) has been sent to letter ballot of the sectional committee. Nine standards for dimension of aerial film spools have been withdrawn (Z38.1.32 through Z38.1.40) as well as specifications for Films for Permanent Records (Z38.3.2). The following standards were sent to letter ballot and have now been sent to the sponsor for approval: Picture Sizes for Roll Film Cameras (for Photography Other than Cinematography) (Z38.4.8); Back Window Location for Roll Film Cameras (Z38.4.9); Threads for Attaching Mounted Lenses to Photographic Equipment (Z38.4.11); Attachment Thread Specifications for Lens Accessories (Z38.4.12); Distance (Focusing) Scales Marked in Meters (Z38.4.13). The Proposed American Standard Practice for Photographic Processing Manipulation of Films and Plates has been sent out for a year's trial and criticism.

War Department Asks for Standard To Identify Industrial Hazards

IN an effort to establish a safety standard for marking hazards as part of the accident prevention program in force in the many government arsenals and factories, the American Standards Association has initiated a project at the request of the War Department to standardize the colors used in marking hazards such as curbings and low beams. The War Department does not intend to use color markings as a substitute for adequate guarding and other positive safety measures, but to standardize the colors used so that each will have a distinct meaning and application. Colors should be selected, the Department believes, to attract the worker's attention so that he will avoid the hazard, or be at- colors are best, and association built up between the color and its significance in the safety program.

Although many plants have tried to develop standards, there is no uniform or universal practice by industry in its adoption of color for safety, it was pointed out, and some plants are not consistent in safety markings even between departments. Easily recognized colors are best, and association should be built up between the color and its significance in the safety program.

The American Standards Association has already approved several standards which assign colors to indicate hazards or points of safety. Important among these is the American Standard, Adjustable Face Traffic Control Signal Heads, D10.1-1942, which defines the red, green, and yellow lights controlling highway traffic. Others include the American Standard Specifications for Industrial Accident Prevention Signs, Z35.1-1941; the American Standard Manual on Uniform Traffic Control Devices for Streets and Highways, D6-1935, which governs colors used on street and highway signs such as those used to point out "danger" and "crossway"; and the American Standard Scheme for the Identification of Piping Systems, A13-1928, in which specific colors are assigned to pipes carrying certain liquids or gases. The War Department feels that a safety color code for industry should be coordinated with other standards not only as to use of specific colors but also definition of the colors themselves.

Several companies have developed color safety codes independently for use in their own plants. These codes will be studied by the committee before action is taken on the development of the standard.

Safety

In Electric and Gas Welding and Cutting Operations

Z49.1-1944

40¢ per copy

A new American War Standard.

Developed to protect workers from injury and health impairment and to safeguard property from fire or other damage.

Covers:

- Installation and operation of gas-welding and gas-cutting equipment.
- Installation and operation of arc-welding and arc-cutting equipment.
- Installation and operation of resistance-welding equipment.
- Fire prevention.
- Protection of personnel (general precautions, eye protection, protective clothing, work in confined spaces and first aid provisions).
- Ventilation and health protection.

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